

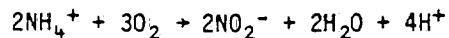
**TITLE:** EFFECT OF RATES OF NITRAPYRIN AND NITROGEN FERTILIZER ON YIELD AND CHEMICAL COMPOSITION OF BURLEY TOBACCO LEAF AND SMOKE

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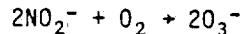
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**ABSTRACT:** Field experiments were conducted during 1979-80 at Lexington, KY, on Maury soil to determine the effects of rates of nitrappyrin [2-chloro-6-(trichloromethyl)-pyridine] and N fertilizer on the chemical composition of burley tobacco (*Nicotiana tabacum* L. cv Ky-14). In Experiment 1, nitrappyrin from 0 to 8.96 kg active ingredient/ha was applied on N fertilizer and broadcast and incorporated immediately into the surface layer of soil. The N fertilizer was applied uniformly at 280 kg N/ha. In Experiment 2, N from 0 to 336 kg N/ha was applied broadcast with and without nitrappyrin (1.12 kg/ha). Plants were sampled 50 days after transplanting, at harvest, and after curing for chemical analysis. Results for Experiment 1 indicated nitrappyrin had negligible effects on growth and yield of tobacco at rates of 1.12 kg/ha and below, but decreased yields at higher rates of nitrappyrin. Generally, concentrations of total N, protein N, total alkaloids, and TVNB-N of leaf, and total particulate matter (dry), nicotine, and tar of all-burley cigarettes were increased by increasing rates of nitrappyrin. In contrast, in leaves the concentration of nicotine N was decreased and the concentrations of mineral elements were unaffected by increasing rates of nitrappyrin. In Experiment 2, growth, cured leaf yields, and concentrations of total N, protein N, nitrate N, and total alkaloids were all greater in the presence than absence of nitrappyrin. The effect of nitrappyrin was greater at low than high rates of N fertilizer.

**REVIEW:** Field experiments were conducted using two fields, on Maury soil, to determine the effects of rates of nitrappyrin and N-fertilizer on the chemical composition of burley tobacco. The functions of nitrappyrin [2-chloro-6-(trichloromethyl)-pyridine] are to stop the pH change of the soil, and to delay nitrification for 30-60 days by stopping the function of nitrosomones.



X nitrosomones



In Experiment 1, nitrappyrin was applied with constant N-fertilizer as described in the abstract. The N-fertilizers used were  $\text{Ca}(\text{NO}_3)_2$ ,  $\text{NH}_4\text{NO}_3$ , and urea. Results indicated that nitrappyrin had negligible effects on growth and yield at rates of 1.12 kg/ha or below, but decreased yields at higher rates of nitrappyrin. Due to higher  $\text{NH}_4^+$  nutrition, the leaves looked wrinkled. Higher nitrappyrin rates also reduced the Mn content in the plant.

-Reviewed by D. Teng

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